

The Introduction details the materials used in the composition of the volume, proceeds to discuss the structure, habits, classification, &c. of the Rhynchota, illustrated by a series of excellent diagrams, and concludes with a synopsis of the families of the Heteroptera.

Mr. Distant's name is a sufficient guarantee for the care and accuracy with which the systematic portion of the book has evidently been compiled; and a word of praise is due to Mr. H. Knight for the series of 249 illustrations in the text, which are among the most excellent which we have seen. They are without colour; but this deficiency is less noticeable in Rhynchota, with their simple colours and patterns, than in the case of Lepidoptera, for instance, with their strongly marked colours and complicated patterns, for the adequate representation of which coloured figures are often almost indispensable.

*Palæontologia Indica*. Series XV. *Himalayan Fossils*. Vol. III. Part 1. *Upper Triassic Cephalopod Fauna of the Himalaya*. By Dr. EDMUND MOJSISOVICS, EDLEM VON MOJSVAR, Imp. Acad. Vienna, &c. Translated by Dr. ARTHUR H. FOORD, F.G.S., and Mrs. A. H. FOORD. Folio. 157 pages, 22 plates, and some woodcuts. Calcutta: Geol. Survey Office. London: Kegan Paul & Co. 1899.

THE Introduction (pages 1-4) gives some account of the history of the collecting of these Triassic Fossils of the Himalaya and of the description of allied forms by several authors. The species referred to in the following list are described with few exceptions at pages 5-126.

# AMMONEA TRACHY-

OSTRACA.	No. of Species.
A. TROPITOIDEA.	
Halorites .....	5
Jovites .....	3
Parajuvavites .....	13
Juvavites.	
<i>a.</i> Anatomites .....	3
<i>b.</i> Griesbachites .....	2
Isculites .....	2
[Woodcut, p. 41.]	
Sagenites .....	4
[Woodcut, p. 41.]	
Didymites .....	1
Tropites .....	5
Styrites .....	2
Eutomoceras .....	2
Thetidites .....	2
B. CERATITOIDEA.	
I. Dinaritea.	
Ceratites.	
<i>a.</i> Helictites .....	1
<i>b.</i> Thisbites .....	1
Arpadites.	
<i>a.</i> Arpadites, s. s. ...	3
[Woodcut, p. 58.]	

	No. of Species.
<i>b.</i> Dittmarites .....	1
<i>c.</i> Clionites .....	6
<i>d.</i> Steinmannites .....	5
<i>e.</i> Dionites .....	1
II. Heraclitea.	
Heraclites (Guembelites)	1
Tibetites.	
<i>a.</i> Tibetites, s. s. ....	4
[Woodcut, p. 78.]	
<i>b.</i> Anatibetites .....	2
<i>c.</i> Paratibetites .....	5
[Woodcut, p. 84.]	
Hauerites .....	1
III. Trachyceratea.	
Trachyceras.	
<i>a.</i> Protrachyceras ...	1
<i>b.</i> Trachyceras, s. s. .	1
Saudlingites .....	2
Sirenites .....	3

# AMMONEA LEIOSTRACA.

A. ARCESTOIDEA.	
Arcestes.	
Stenarcestes .....	1
[Woodcut, p. 97.]	

	No. of Species.		No. of Species.
Arcestes, s. s. ....	3	Ptychites .....	1
Proarcestes .....	1	Hungarites .....	1
Lobites .....	1	[Woodcut, p. 119.]	
Joannites .....	1	NAUTILEA.	
Cladiscites (Hypocla- discites) .....	1	A. GYROCATIDÆ.	
Paracladiscites .....	2	Pleuronautilus .....	2
B. PINACOCERATOIDEA.		B. NAUTILIDÆ.	
Pinacoceras .....	2	Nautilus .....	3
Bambanagites .....	2	Clydonautilus .....	3
Placites .....	3	C. ORTHOCERATIDÆ.	
Megaphyllites .....	1	Orthoceras .....	1
Mojšvarites .....	1	DIBRANCHIATA.	
Phylloceras .....	1	AULACOCERATIDÆ.	
		Atractites .....	1

In the Results (pages 126–157) the forms described are grouped in zones that correspond mainly, as characterized by the Cephalopods, with the Carnic (page 127) and the Juvarian (page 137) stages of the European Trias, as shown in the accompanying Table, and details are given of the relationship of these stages.

It has been the aim of geologists acquainted with the several faunæ found in these zones to work out the extent and limits of the seas of the Trias Period. The chief of these old marine areas is the so-called Thetys, including:—1. The Mediterranean Province (the most westerly inlet); 2. The Germanic shallow sea; 3. The Indian Province.

“The Germanic shallow sea forms a part of the Mediterranean Province, and may be regarded as an estuary, which was bordered by the extensive continent now sunk in the Atlantic Ocean. This Triassic ‘Atlantis’ existed probably already at the close of the Palæozoic period. It reached in the west probably as far as the present North-American continent, which, as is known, possesses extensive Triassic lacustrine deposits, of the character of the German Buntsandstein and Keuper in its eastern part; while pelagic deposits of the Trias are to be met with only on the Pacific slopes of this continent.”

The Upper Triassic deposits in the Arctic-Pacific Provinces are not yet fully examined, but very interesting results are anticipated for the future. It is known that the Noric Tirolitidæ, spreading from the Mediterranean Province, penetrated to the eastern shore of the Pacific basin, and that “the poor Cephalopod fauna of the Werfen beds extended from the eastern regions of the Thetys into the small Mediterranean area.”

Further migrations appear to have occurred while the Mediterranean gulf remained in open connexion with the Thetys. “The Indian regions of the Thetys were in uninterrupted communication with the Arctic regions in the Scythic as well as in the Dinaric period.”

The author has elsewhere already referred to the simultaneous occurrence of types in remote regions of the sea and to the surprising fact that in both the Mediterranean and the Indian Trias a con-

SERIES.	STAGES.	SUBSTAGES.	ZONES OF THE MEDITERRANEAN PROVINCE.
Bajuvarian.	Rhaetic.	Rhaetic.	22. Zone of <i>Avicula concorta</i> .
	Juvarian.	Sevatic.	21. Zone of <i>Sirenites Argonautæ</i> .
			20. Zone of <i>Pinaroceras Metternichi</i> .
		Alaunic.	19. Zone of <i>Cyrtopleurites bicrenatus</i> .
			18. Zone of <i>Cladiscites ruber</i> .
	Carnic.	Lacic.	17. Zone of <i>Sagenites Giebeli</i> .
		Tuvalic.	16. Zone of <i>Tropites subbullatus</i> .
		Julian.	15. Zone of <i>Trachyceras Aonoides</i> .
		Cordevolic.	14. Zone of <i>Trachyceras Aon</i> .
		Longobardic.	13. Zone of <i>Protrachyceras Archelaus</i> .
Tyrolese.	Noric.		12. Zone of <i>Dinarites avisianus</i> .
		Fassanic.	11. Zone of <i>Protrachyceras Curionii</i> .
	Anisic.	Bosnian.	10. Zone of <i>Ceratites trinodosus</i> .
		Balatonic.	9. Zone of <i>Ceratites binodosus</i> .
	Hydaspic.	Hydaspic.	
Seythian.	Jakutic.	Jakutic.	Zone of <i>Tirolites Cassianus</i> .
	Brahmanic.	Gandaric.	
		Gangetic.	

## INDIAN PROVINCE.

## HIMALAYA.

## SALT-RANGE.

Hochgebirgskalk (?).

Variegated Series.

" *Sagenites* beds " (?).Beds with *Spiriferina Griesbachi*.Zone of *Steinmannites undulatostratus*.Zone of *Clydonautilus Griesbachi*.*Tropites* Limestone of Kalapani.a. *Daonella* beds.b. Beds of *Trach. tibeticum*.*Pseudharpoceras spiniger* (?).Zone of *Ptychites rugifer*.Zone of *Sibirites Prakhada*.Beds with *Ceratites subrobustus*.

8. Zone of *Stephanites superbus*.
7. Zone of *Flemingites Flemingianus*.
6. Zone of *Flemingites radiatus*.
5. Zone of *Ceratites normalis*.
4. Zone of *Proptychites trilobatus*.
3. Zone of *Proptychites Lawrenceanus*.
2. Zone of *Gyronites frequens*.

Zone of *Otoceras Woodwardi*.

cordant order of successive faunæ can be proved to exist. "It is now shown that this phenomenon also extends to the Pacific region, and that it therefore comprises the whole vast region of the pelagic Triassic deposits known to us."

Research in the vast regions of the earth not yet opened out will probably settle the doubts as to the habitats of the original types of now scattered faunæ. "At the time of the Upper Trias remarkable changes in the distribution of continents and in the extent of the seas, especially in the region of the Pacific Ocean, must have taken place." It follows "that changes in the physical characters of the surface of the earth must have most materially influenced the distribution of the organic beings thereon."

*Palæontologia Indica*. Series XVI. *Baluchistán*. Vol. I. *The Jurassic Fauna*. Part 1. *The Fauna of the Kellaways of Mazár Drik*. By FRITZ NOETLING, Ph.D., F.G.S., &c. Folio. 22 pages, 13 plates. Calcutta: Geol. Survey Office. London: Kegan Paul & Co. 1896.

THE lowest formation in the Mari Hills of Baluchistán is a massive limestone, for the most part yielding only some *Terebratulæ* and *Rhynchonellæ*, not well preserved; but a good fossil fauna was found in this rock near Mazár Drik, namely:—Brachiopoda, 2 species; Pelecypoda, 3 spp.; Gasteropoda, 1 sp.; Cephalopoda, 15 spp. Of the last there are three species of Nautiloidea and twelve of Ammonoidea. The genus *Macrocephalites* predominates; and *M. polyphemus* is the most frequent species. Hence this massive limestone of Baluchistán is called the *polyphemus*-limestone by the Author, and appears to be equivalent to the Charee group of Kutch, and to be homotaxial with the Lower Kellaways Series of Europe.

Of the thirteen plates, pl. i. illustrates *Terebratula ventricosa*, Zieten, *Rhynchonella plicatella*, Sow.; also a *Lima* and a *Pholudomya*. Remains of a *Gervillea* and of a *Pleurotomaria* are also described (page 6).

Plates ii. to xiii. illustrate the following:—

*Nautilus wandaensis* \*, *Waagen*.  
 — *giganteus* \*, *d'Orbigny*.  
 — *intumescens* \*, *Waagen*.  
*Harpoceras*, sp.  
*Sphæroceras bullatum*, *d'Orb*.  
*Macrocephalites macrocephalus* \*,  
*Schlotheim*, sp.  
 — *transiens* \*, *Waagen*.  
 — *polyphemus* \*, *Waagen*.

*Macrocephalites subcompressus* \*,  
*Waagen*.  
 — *granatum* \*, *Waagen*.  
 — *opis* \*, *Waagen*.  
*Perisphinctes balinensis* \*, *Waagen*  
 (non *Neumeyr*).  
 — *baluchistensis*, sp. nov.  
 — *recuperoi* \*, *Gemmellaro*.  
 — *aberrans* \*, *Waagen*.

The species marked with an asterisk "have been identified with specimens described from Kutch."